The future of college student surveys

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Percontor, LLC

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Our goal

Population ($\mu$)

Survey ($\bar{X}$)
Where problems can occur

Observation Population ($\mu$) Representation

Construct to Target population

Measurement to Sampling frame

Response to Sample

Edited response to Respondents

Survey ($\bar{X}$) to Postsurvey adjustments
Problems with representation

- Observation
- Population ($\mu$)
- Representation
  - Target population
  - Sampling frame
  - Sample
    - Nonresponse error
    - Respondents
      - Postsurvey adjustments
        - Survey ($\bar{X}$)
  - Coverage error
## Response rates over time

<table>
<thead>
<tr>
<th>Contact rate (percent of households in which an adult was reached)</th>
<th>1997</th>
<th>2000</th>
<th>2003</th>
<th>2006</th>
<th>2009</th>
<th>2012</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>%</td>
<td>%</td>
<td>%</td>
<td>%</td>
<td>%</td>
<td>%</td>
</tr>
<tr>
<td>Cooperation rate (percent of households contacted that yielded an interview)</td>
<td>43</td>
<td>40</td>
<td>34</td>
<td>31</td>
<td>21</td>
<td>14</td>
</tr>
<tr>
<td>Response rate (percent of households sampled that yielded an interview)</td>
<td>36</td>
<td>28</td>
<td>25</td>
<td>21</td>
<td>15</td>
<td>9</td>
</tr>
</tbody>
</table>

PEW RESEARCH CENTER 2012 Methodology Study. Rates computed according to American Association for Public Opinion Research (AAPOR) standard definitions for CON2, COOP3 and RR3. Rates are typical for surveys conducted in each year.

http://www.people-press.org/2012/05/15/assessing-the-representativeness-of-public-opinion-surveys/
Expected relationship between response rates and bias

- Expected relationship between response rates and bias

- Nonresponse rate vs. Bias

- Scatter plot showing the relationship between nonresponse rate and bias.
What Groves and Petcheva (2008) found from 59 surveys
Covered error vs. nonresponse error

Classroom surveys yield in theory a 100% response rate

- So who does not take the survey?
Coverage error vs. nonresponse error

Classroom surveys yield in theory a 100% response rate

- So who does not take the survey?
- Coverage error could be substantial
Coverage error vs. nonresponse error

Classroom surveys yield in theory a 100% response rate
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Web surveys include all students, so no coverage error
- Response rates are typically low
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Web surveys include all students, so no coverage error
- Response rates are typically low

Important issue for community colleges, but we know little
- Perhaps the two errors have similar effects?
Problems with observations

Observation → Population ($\mu$) → Representation

Construct

Observation Population (µ) Representation

Measurement

Validity

Measurement error

Response

Validity

Edited response

Survey ($\bar{X}$)

Target population

Sampling frame

Sample

Respondents

Postsurvey adjustments
Answering a typical survey question

In your experiences at this college during the current academic year, about how often have you done each of the following?

Come to class without completing readings or assignments?
Answering a typical survey question

In your experiences at this college during the current academic year, about how often have you done each of the following?

Come to class without completing readings or assignments?

1. For each course, encode in memory the number of times came to class unprepared over an entire year.
Answering a typical survey question

*In your experiences at this college during the current academic year, about how often have you done each of the following?*

*Come to class without completing readings or assignments?*

1. For each course, encode in memory the number of times came to class unprepared over an entire year

2. Understand exactly what “completing readings or assignments” means
**Answering a typical survey question**

*In your experiences at this college during the current academic year, about how often have you done each of the following?*

**Come to class without completing readings or assignments?**

1. For each course, encode in memory the number of times came to class unprepared over an entire year
2. Understand exactly what “completing readings or assignments” means
3. At end of school year, retrieve these numbers from memory
Answering a typical survey question

_In your experiences at this college during the current academic year, about how often have you done each of the following?

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2. Understand exactly what “completing readings or assignments” means
3. At end of school year, retrieve these numbers from memory
4. Combine them to come up with total number of times
5. Map this number to a vague response scale: very often, often, sometimes, never
Garry et al. (2002) asked 37 college students to complete a daily sex diary via email for 1 month.
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Surveyed 6 to 12 months later about sexual activity during the diary phase.
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**Response scale**

*How many hours per day do you typically study? Would you say ...*

<table>
<thead>
<tr>
<th></th>
<th>Scale A</th>
<th>Scale B</th>
</tr>
</thead>
<tbody>
<tr>
<td>≤ 2.5 hours</td>
<td>½ hour or less</td>
<td>2½ hours or less</td>
</tr>
<tr>
<td></td>
<td>From ½ to 1 hour</td>
<td></td>
</tr>
<tr>
<td></td>
<td>From 1 to 1½ hours</td>
<td>From 2½ to 3 hours</td>
</tr>
<tr>
<td></td>
<td>From 1½ to 2 hours</td>
<td>From 3 to 3½ hours</td>
</tr>
<tr>
<td></td>
<td>From 1½ to 2½ hours</td>
<td>From 3½ to 4 hours</td>
</tr>
<tr>
<td>&gt; 2.5 hours</td>
<td>Or more than 2½ hours</td>
<td>Or more than 4½ hours</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Response scale

**How many hours per day do you typically study? Would you say** . . .

<table>
<thead>
<tr>
<th>Range</th>
<th>Scale A</th>
<th>Scale B</th>
</tr>
</thead>
<tbody>
<tr>
<td>≤ 2.5 hours</td>
<td>½ hour or less</td>
<td>2½ hours or less</td>
</tr>
<tr>
<td></td>
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<td>From 3 to 3½ hours</td>
</tr>
<tr>
<td></td>
<td>From 1½ to 2 hours</td>
<td>From 3½ to 4 hours</td>
</tr>
<tr>
<td></td>
<td>From 1½ to 2½ hours</td>
<td>From 4 to 4½ hours</td>
</tr>
<tr>
<td></td>
<td>Or more than 2½ hours</td>
<td>Or more than 4½ hours</td>
</tr>
<tr>
<td>&gt; 2.5 hours</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Percentage of students reporting activities > 2.5 hours

<table>
<thead>
<tr>
<th>Activity</th>
<th>Scale A</th>
<th>Scale B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Studying</td>
<td>29</td>
<td>71</td>
</tr>
<tr>
<td>Using computer</td>
<td>34</td>
<td>66</td>
</tr>
<tr>
<td>Watching TV</td>
<td>8</td>
<td>21</td>
</tr>
</tbody>
</table>
Current state of student surveys

1. We ask students about frequent, mundane events they don’t care about.
Current state of student surveys

1. We ask students about frequent, mundane events they don’t care about.
2. These events are not encoded in their memory, so students construct answers as they take our surveys.
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3. We use vague language in questions, so there is no common understanding of terms.
Current state of student surveys

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4. We use vague response scales, with no common understanding of categories.
Current state of student surveys

1. We ask students about frequent, mundane events they don’t care about.
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<table>
<thead>
<tr>
<th>Characteristics of academic surveys</th>
<th>Reason</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lengthy surveys with many questions</td>
<td>Need scales acceptable to other academics</td>
</tr>
<tr>
<td></td>
<td>Need variables for statistical models</td>
</tr>
<tr>
<td>Items are vaguely worded</td>
<td>Must have items that are comparable across schools</td>
</tr>
<tr>
<td>Surveys are rarely altered over time</td>
<td>Change calls into question findings from their previous research</td>
</tr>
</tbody>
</table>
What does the future hold?
Different approaches to asking questions

Not much more we can do about response rates at this point

- Instead, focus on question wording
Different approaches to asking questions

Not much more we can do about response rates at this point
- Instead, focus on question wording

Some possibilities:
- More specific language in questions
- More specific response scales
Have you contacted or interacted with the Academic Excellence Center during this semester?

- Yes
- No

Source: https://www.risc.college/view-survey
Asking questions better

How available were the Academic Excellence Center staff when you interacted with them?

- Very available
- Somewhat available
- Somewhat unavailable
- Very unavailable

Source: https://www.risc.college/view-survey
Most students interact with web via their phones

Surveys must be designed with this in mind
Motivation and cognitive effort

Liu et al. (2012) studied performance on the ETS Proficiency Profile

Two experimental conditions

1. Control condition: Your answers on the tests and the survey will be used only for research purposes and will not be disclosed to anyone except the research team.

2. Personal condition: Your answers on the tests and the survey will be used only for research purposes and will not be disclosed to anyone except the research team. However, your test scores may be released to faculty in your college or to potential employers to evaluate your academic ability.
Motivation and cognitive effort

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2. Personal condition: Your answers on the tests and the survey will be used only for research purposes and will not be disclosed to anyone except the research team. **However, your test scores may be released to faculty in your college or to potential employers to evaluate your academic ability.**

Students in the personal condition scored dramatically higher

- Research university: .40 SD
- Master’s university: .37 SD
- Community college: .68 SD
Motivation and cognitive effort

13. This section has three parts. Please answer all three sections, indicating (1) HOW OFTEN you use the following services, (2) HOW SATISFIED you are with the services, and (3) HOW IMPORTANT the services are to you AT THIS COLLEGE.

<table>
<thead>
<tr>
<th>(1) Frequency of Use</th>
<th>(2) Satisfaction</th>
<th>(3) Importance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Often</td>
<td>Very</td>
<td>Very</td>
</tr>
<tr>
<td>Sometimes</td>
<td>Somewhat</td>
<td>Somewhat</td>
</tr>
<tr>
<td>Rarely/Neve</td>
<td>Not at all</td>
<td>Not at all</td>
</tr>
<tr>
<td>Don't know/ N.A.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Academic advising/planning</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. Career counseling</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. Job placement assistance</td>
<td></td>
<td></td>
</tr>
<tr>
<td>d. Peer or other tutoring</td>
<td></td>
<td></td>
</tr>
<tr>
<td>e. Skill labs (writing, math, etc.)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>f. Child care</td>
<td></td>
<td></td>
</tr>
<tr>
<td>g. Financial aid advising</td>
<td></td>
<td></td>
</tr>
<tr>
<td>h. Computer lab</td>
<td></td>
<td></td>
</tr>
<tr>
<td>i. Student organizations</td>
<td></td>
<td></td>
</tr>
<tr>
<td>j. Transfer credit assistance</td>
<td></td>
<td></td>
</tr>
<tr>
<td>k. Services to students with disabilities</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: http://www.ccsse.org/refresh/CCSSE_Refresh_Sample.pdf
Branching to reduce effort and shorten time

Let's start with the first area where you may have had a challenge.

Think about your use of **academic support services**. Have you had any challenges in the following areas?

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Academic advising</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tutoring</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Library</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Registering for courses</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Computer and science labs</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: https://www.risc.college/view-survey
Branching to reduce effort and shorten time

What issues did you have with tutoring?

Please check all that apply.

- Tutoring not helpful
- Tutoring hours not convenient
- Tutors not available when I need assistance
- Tutoring not available in the subject area I needed
- None of the above

Source: https://www.risc.college/view-survey
Total survey error

Observation

Population (μ)

Representation

Target population

Sampling frame

Sample

Respondents

Postsurvey adjustments

Survey (\( \tilde{X} \))

Edited response

Response

Measurement

Construct

Observation

Population (μ)

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Survey (\( \tilde{X} \))
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Background

Representation

Nonresponse error

Coverage error

Observation

Memory

Response scale

The present

The future

Asking questions

Technology

Cognitive effort

Questions?


